BIOL 206
Foundations of Biology: Ecology and Evolution Lab

Syllabus, Spring 2025, Sections 002, 004, 006, & 102

Course Information

Instructor Information & Office Hours

Lab Instructors

Grant Bowers (gb364@njit.edu) (pronouns: he/him) – Sections 002, 006
Isaiah Rejouis (ior2@njit.edu) (pronouns: he/him) – Sections 004, 102

Office Hours: by appointment – will meet in Biology Office Suite or online

Lab Coordinator

Dr. Caroline DeVan (caroline.m.devan@njit.edu) (pronouns: she/her)

Office Hours: Tues 10:00am – 1:00pm; and by appointment
Office: CKB 337F in Biology Office Suite or online (link on canvas)

Course Requirements

Prerequisite: Concepts in Biology (BIOL 200).
Corequisite: Foundations of Biology: Ecology & Evolution Lecture (BIOL 205).
Mac or PC will be needed for some classes (Chromebooks are not compatible).

Section Meeting Information

Meeting Times & Locations

BIOL 206-002: Mondays 8:30AM–11:20AM (Bowers)
BIOL 206-004: Wednesdays 8:30AM–11:20AM (Rejouis)
BIOL 206-006: Thursdays 8:30AM–11:20AM (Bowers)
BIOL 206-102: Thursdays 6:00PM–8:50PM (Rejouis)

All lab sections meet in CKB 328

Course Description

This course is the laboratory component of Foundations of Biology: Ecology and Evolution. The labs are designed to a) give you hands-on experience performing research—making observations, gathering and analyzing data, drawing conclusions, b) introduce you to common procedures and analyses used in the study of ecology and evolution, and c) complement and elaborate upon concepts learned in the lectures.

Textbook & Course Materials

Required Text

There is no required textbook for this lab. All lab materials will be posted on Canvas.

SimBio Software

Some labs will require the use of a program called SimBio. This program must be downloaded and installed on your computer. The link to download this program will be posted to Canvas. If you have used SimBio previously you will need to re-download it for it to work correctly. This program is not compatible with ChromeBooks. A mac or PC is required for this course. If you do not have access to either of these, the lab computers will be made available to you.

Course Structure

Course Modality

This course will be delivered face-to-face through a combination of the Canvas learning management system and classroom activities. In Canvas, you will access lab handouts and lab assignments, and upload your work. You must use your NJIT UCID to log in to Canvas. If you are matriculated at NJIT you should already have a UCID. If you are a student from Rutgers or any other institution and do not yet have one you can request one here or call the NJIT helpdesk for assistance (973-596-2900). Please be sure that you have gone into your profile and changed your preferred e-mail to an account you check regularly. **Canvas will automatically use your NJIT e-mail address, and this is where all messages sent through Canvas will go.** You can change your contact information on Canvas, but you should also make sure you forward your NJIT email to your normal email (directions on Canvas).

Face-to-face Activities

This course is designed to be completed in the lab, with your lab instructor. All labs will take place at their scheduled time. During these meetings you will complete lab activities and work in groups to complete a course research project. *If for some reason you cannot attend a particular class meeting, you must notify your instructor in advance.* In addition most weeks you will have some assignments that follow-up on lab activities that you will be required to complete on your own.

Turning In Assignments

A course 'week' starts on the day of your lab and ends the night before your next lab. All assignments for a week will have a due date of midnight the night before your next lab, except where otherwise indicated. Therefore:

Bio 206-002: Homework is due midnight on Sundays
Bio 206-004: Homework is due midnight on Tuesdays
Bio 206-006: Homework is due midnight on Wednesdays
Bio 206-102: Homework is due midnight on Wednesdays

Technical Assistance

If you need technical assistance at any time or to report a problem with Canvas you can:
Email the IST Service Desk
Chat with live support at any time or call (877-889-7685)
Submit a helpdesk ticket

Course Learning Outcomes

At the completion of this course, students will be able to:

1. Explain how laboratory activities illustrate lecture concepts.
2. Use evidence to support scientific conclusions.
3. Research topics using electronic and print sources and attribute sources properly.
4. Design and carry out an experiment to test a scientific question.
5. Analyze and interpret scientific data using a statistical analysis.
6. Communicate scientific results in written format.

You will meet the outcomes listed above through a combination of the following learning activities in this course:

- Pre-lab lectures and discussions of labs;
- Completion of lab activities, including simulations and experiments;
- Writing a manuscript-style lab report.
- Presenting your research data to the class

Course Outline

Important Note: Refer to the course calendar on Canvas for specific activities and due dates. Activity and assignment details will be explained in detail within each week's corresponding learning module. If you have any questions, please post them to the Discussion forum. The course outline is likely to change as we go through the semester.

Week 1 (Jan 20 - Jan 26) — NO LABS

Week 2 (Jan 27 – Feb 2)— Introduction to the Lab and the Scientific Method

Week 3 (Feb 3 – Feb 9) — Understanding Experimental Design: SimBio

Week 4 (Feb 10 – Feb 16) — Making Scientific Observations, Introduction to Research Project on Invasive Species & Plant Morphology

Workshop: Finding, Reading and Citing Scientific Papers

Week 5 (Feb 17 – Feb 23) — Natural Selection Simulation

Week 6 (Feb 24 – Mar 2) — Course Research Project: Developing Hypotheses, Predictions & Protocols

Week 7 (Mar 3 – Mar 9) — Course Research Project: Data Collection

Week 8 (Mar 10 – Mar 16) — Phylogeny, Course Research Project: Data Collection (continued)

Week 9 (Mar 17 - Mar 23) – NO LABS – Spring Break

Week 10 (Mar 24 – Mar 30) — Course Research Project: Data Analysis and Scientific Figures

Workshop: Scientific Communication - Presentations

Week 11 (Mar 31 – Apr 6) — Island Biogeography (Sections 002 & 004 - no Thursday Classes – Wellness Day)

Week 12 (Apr 7 – Apr 13) — Course Research Project: Present Project Findings, Formal Lab Report Peer Review

Workshop: Scientific Communication - Report Writing

Week 13 (Apr 14 – Apr 20) — Measuring Populations

Week 14 (Apr 21 – Apr 27) — Measuring Communities I

Week 15 (Apr 28 – May 4) — Measuring Communities II

Week 16 (May 5 – May 11) — Island Biogeography (Sections 006 & 102 only – Tuesday as a Thursday schedule)

Good Luck on Finals!

Grading Policy

Breakdown by assignment type

Descriptions	**% Total Grade**
Participation & In Class Assignments (110 pts)	29%
Homework (165 pts)	44%
Research Project (100 pts)	27%
Total	**375**

Participation & In-class Assignments

To get full participation points for each class you must arrive on time, and participate in the class activity throughout the *entire* class period. Attendance (worth 5 points) will be measured by the completion of a short in-class quiz at the start of each class period. Students arriving late will not be able to complete the quiz and will lose these points. In-class work (worth 5 points) will be based on the class activity and will be assessed in a variety of ways, (e.g., a short assignment or quiz for SimBio lessons or a progress report or deliverable for research days). These in-class assignments are due by the end of that class. Attendance quizzes and in class work cannot be made up if missed. Each class period you will be able to earn 10 points – the lowest score will be dropped.

Homework

For each lab, there is a homework assignment. For the SimBio labs, your homework will be a quiz based on the simulation. On the research days, the homework will be either preparation for the next class or specific deliverables related to completing the research project. Homework will be due the following week (see your sections weekly schedule above). Each homework will be worth 15 points – the lowest score will be dropped.

Lab Report

You will design and execute a research project that explores the effects of invasion on the morphology of a plant species of your choosing (for example leaf size or shape). Your research project will utilize digitized herbarium specimens to measure morphology, to see if there are differences between plants from their native and invasive ranges. We will work together as a lab to measure a number of morphological traits, so we can test several versions of this hypothesis. You will work on your lab report over the semester in a series of smaller assignments and you will present your results periodically to the rest of the class. At the end of the research project you will write a lab report detailing your research and results. You will also write a self-reflection on the process of writing this assignment. The first draft of this report will receive both peer review and feedback from your instructors. You will also present a final group presentation summarizing your findings.

Late Submissions

In-class assignments, homework and lab report submissions will be penalized 10% per day if submitted late. SimBio quizzes will not be available to take after the grades are posted (grades will be posted 10 day after the due date). Contact your instructor immediately if you require an extension for any assignment, homework, quiz or report.

Viewing Grades

Grades for each assignment in the categories listed above can be found under the 'Grades' tab on Canvas. All grades will be posted within one week of the due date.

Letter Grade Assignment

Final grades assigned for this course will be based on the total points earned from the categories above and are assigned as follows:

Letter Grade	**Percentage**
A	90–100%
B+	85–89%
B	80–84%
C+	75–79%
C	70–74%
D	60–69%
F	0–59%

Course Policies

Attendance and group work

This course will involve intensive group work with your colleagues. You will be working together to do science! As such, your classmates and group members will be relying on you to come to class prepared and on time. Attendance and participation are mandatory - missed labs cannot be made up and corresponding participation points are forfeited. However, we understand that sometimes things come up. For these cases, we ask that students provide advance notice (at least 24 hours) to your instructor when possible, but if there is an emergency, we will understand. Then to get your attendance excused you must get your absence verified by submitting the appropriate documentation to the Office of the Dean of Students. Excusable causes for absence include family or medical emergencies. Do NOT submit this documentation to your instructor or the lab coordinator. Instructors can excuse up to three (3) labs with verified absences. Unverified absences cannot be excused. Students missing more than 3 labs, even if all are verified, cannot pass the course in this semester. Please see the NJIT Biology Department Policy on Absences for additional details.

Contact Information and Communication

We will be using a Discussion forum on Canvas for all inquiries related to the course content and assignments. Rather than emailing general course questions to your instructor, you should post your questions in the discussion forum called 'Course Questions'. This will result in a timelier response, and other class members may benefit from the information. Questions of a personal nature should still be directed to your instructor and/or the lab coordinator at the email(s) above. We will respond to your posting or email within a 24-hour period on work days or 48 hours on weekends.

Remember that you always have access to the 24/7 IST Service desk for help with technical issues.

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor and the lab coordinator know as early as possible so that we can help you find a solution.

Technology

To successfully complete this course, you will need a mac or PC computer and access to Canvas. Note that Chromebooks are not compatible with our various software. If you are unable to get or have difficulty accessing any of these options, you will be able to make use of the lab computers which will be equipped with all of the programs that you will need throughout the course.

Course Materials

All course materials (including recordings of lectures) are for students' personal use only and may not be posted or shared in any form anywhere.

Academic Dishonesty

The course has a zero-tolerance policy for academic dishonesty, including plagiarism and cheating. The punishment for dishonesty in this course will be a zero on the assignment and a consultation with the Dean of Students after which further action may be required. If you have any questions about what constitutes plagiarism or cheating, please ask your instructors or refer to NJIT's Academic Integrity Code.

Artificial Intelligence (AI)

This course expects students to work without artificial intelligence (AI) assistance unless specifically stated in the directions of an assignment. For assignments in which AI use is permitted, the AI must be cited as is shown within the NJIT Library AI citation page for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructors prior to submitting any assignments.

Support Services

Your classroom as well as your college experience is meant to be a place where the free flow of ideas is encouraged and nurtured. It is not acceptable for any community member to make hurtful and demeaning remarks, or otherwise disrupt your learning experiences or your safety. As such, there are many NJIT support systems and policies of which you should be aware.

Basic Needs

Students who face challenges securing their food or a safe and stable place to stay are urged to contact the Dean of Students (dos@njit.edu).

Student Parents

If circumstances arise that necessitate your absence from class—such as the illness of a child, closing of day care for inclement weather, etc.—please contact us as soon as possible so we may make arrangements to keep you up-to-date with course material and activities. If you should need any other kind of assistance for circumstances relating to your status as a student and parent, please consider contacting the Dean of Students and Campus Life at 973.596.3466 for a referral to appropriate services including on and off campus support.

Emergency Support

Crises Happen: If you experience a life emergency and are unsure which support services to turn to, NJIT Public Safety can connect you to emergency support systems - call 9-1-1 in an emergency. You can report a crime at 973.596.3111.

For medical, psychological or psychiatric emergencies you can also call: University Hospital Crisis 973.623.2323.

If you want to report a concern about another students' well-being you can also reach out to the NJIT CARE Team or the Dean of Students Office.

Consensual, Healthy Personal & Professional Relationships

Your body is your own and NJIT strives to protect its community members from any unwanted advances. Title IX prohibits discrimination based on sex, including harassment, domestic and dating violence, sexual assault, and stalking. Sexual violence undermines students' academic success. Anyone dealing with sexual misconduct should consider talking to someone about their experience, so he/she/they can get the support needed.

Confidential Resource

- Center for Counseling and Psychological Services (C-CAPS) Campbell Hall, Room 205 (Main Level) | 973.596.3414

Non-Confidential Resources:

- NJIT Public Safety | 973.596.3116
- Dean of Students Office, Central King Building L71 | 973.596.3466

Mental Health and Stress Management

Center for Counseling and Psychological Services (C-CAPS) is committed to advancing the mental health and wellbeing of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available.

Diminished mental health, including significant stress, mood changes, excessive worry, or problems with eating and/or sleeping can interfere with optimal academic performance. The source of symptoms might be related to your course work; if so, please speak with me. However, problems with relationships, family worries, loss, or a personal struggle or crisis can also contribute to decreased academic performance. Please seek out help as needed. Campbell Hall, Room 205 (Main Level) | 973.596.3414

Special Accommodations

If you have a disability or a personal circumstance that will affect your learning in this course, please let me know as soon as possible so that we can discuss the best ways to

meet your needs. Any student who needs accommodation for disabilities should also contact the Office of Accessibility Resources and Services (OARS):
Kupfrian Hall, Room 201|973.596.5417 | oars@njit.edu

Religious/Cultural Observance

Students who have religious or cultural observances that coincide with this class should let me know by email within the first two weeks of class. I strongly encourage you to honor your cultural and religious holidays! However, if I do not hear from you within the first two weeks, I will assume that you plan to attend all class meetings.

Supporting Academic Integrity

Our community functions best when its members treat one another with honesty, fairness, respect, and trust. The college promotes the assumption of personal responsibility and integrity, and prohibits all forms of academic dishonesty and misconduct.

Issues of Concern (Non-Emergency)

Alert the Dean of Students Office (dos@njit.edu) about issues of concern, including academic and non-academic violations.